BLACK LEG DISEASE OF POTATOES

BY

PAUL A. MURPHY, B.A., M.R.C.S.I.,

Assistant in charge of Field Laboratory for Plant Pathology, Charlottetown, P.E.I.

This disease of potatoes is not very well known, although it is widespread in Canada, as in most countries where potatoes are grown, and does a great deal of harm in certain years.

It appears in July as a rule—affected plants being of a light yellowish-green colour and sickly looking. They have little anchorage in the ground, and the underground part of the stem is attacked by a soft black rot which can be traced down into the set, where it arises. Diseased plants seldom produce any crop, and if they do the tubers rot as a rule, the infection passing into them from the parent plant. The affected tubers are moist and soft, often with a black cavity inside, or the whole of the flesh may be reduced to a whitish pulp. Sometimes the sprouts are attacked before they come above ground, thus causing a miss. Not all misses are due to Black Leg, but in the year 1915 in Eastern Canada a very large amount of the missing then prevalent was due to this cause.

Control.

The parasite which causes this disease is carried by the seed alone. It does not persist in the soil and it is not carried through the air, so that *the disease can be entirely eliminated by the use of clean seed.* If the following directions as to seed treatment and the other recommendations be followed, the disease can be eradicated in two years.

1. Do not, if possible, use seed from a field in which there was a large amount of Black Leg or of missing plants.

2. Before cutting potatoes for seed, pick out and discard all decayed, broken, cut, or bruised tubers. It is by them that Black Leg is carried.

3. Steep the selected sound potatoes in either—

   (*a*) a solution of two ounces of corrosive sublimate (poison) in 25 gallons of water for three hours; or

   (*b*) a solution of one pint of formalin in 30 gallons of water for two hours.

Both treatments are about equally effective for this and for some other diseases, though not for all, while the formalin method has the advantage of being safe and quick. Corrosive sublimate is a dangerous poison, and treated potatoes must not be used for food; neither should food or drinking water for stock be placed in the vessel which has been used to contain it.

DOMINION EXPERIMENTAL FARMS.

J. H. GRISDALE, B.Agr., Director.

H. T. GÜSSOW, Dominion Botanist.

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PLATE A.—A potato plant dying from an attack of Black-leg.
" B.—An infected shoot, blackened by the disease at the base, the so-called "black-leg."
" C-F.—A number of potatoes, cut through, showing the disease within the tuber.

(Photo through the courtesy of Dr. W. A. Orton, U. S. Dept. of Agr.)

Note (*a*). Corrosive sublimate is rather insoluble and a small quantity of hot water should be used to dissolve it. Wooden or earthenware vessels only should be used.

Note (*b*). More than one batch of potatoes should not be disinfected in the same solution of corrosive sublimate because it loses its strength quickly. The formalin solution may be used repeatedly.

Note (*c*). Corrosive sublimate should not cost any more than 20 cents an ounce Formalin should not cost more than 25 cents per pint.

4. Keep a jar of formalin solution of the same strength at hand with a spare knife in it when cutting seed, and if a tuber which shows traces of rot be met with, discard the whole tuber and drop the knife, with which it has been cut, into the disinfectant and use the other one.

5. Do not grow potatoes in soil that needs draining. A wet soil favours the disease.

The disinfection mentioned in (3) will not be effective unless the selection described in article (2) be also carried out. Either of the treatments given is also good for Common Scab, and to a less extent for Rhizoctonia and Powdery Scab, for which the corrosive sublimate is better. These diseases are capable of living in the soil also.

For further information apply to the Dominion Botanist, Central Experimental Farm, Ottawa.

Read also—

Potato Diseases Transmitted by the Use of Unsound Seed. Farmers' Circular No. 4.

The Control of Potato Diseases. Farmers' Circular No. 9.

Potato Scab. Exhibition Circular No. 44.

Powdery Scab of Potatoes. Farmers' Circular No. 5.

Free on request, Central Experimental Farm, Ottawa.

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